

IN THE CLAIMS:

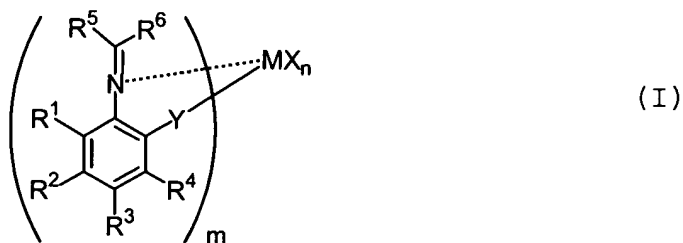
1. (Currently Amended) A process for polymerizing an olefin comprising polymerizing or copolymerizing an olefin at a polymerization reaction temperature of 50 to ~~200~~ 170 °C in the presence of an olefin polymerization catalyst consisting essentially of:

(A) a transition metal compound represented by the following formula (I),

(B-1) an organoaluminum compound having reducing ability which reacts with the transition metal compound (A) to convert an imine structure moiety to a metal amide structure, and

(B-2) a compound which reacts with the transition metal compound (A) to form an ion pair;

wherein said transition metal compound is represented by the following formula (I)



wherein M is a transition metal atom of Groups 4 and 5 of the periodic table,

m is an integer of 1 to 6,

Y is an oxygen atom, a sulfur atom or a selenium atom, or a nitrogen atom having a substituent R⁷,

R¹ to R⁷ may be the same or different, and are each a hydrogen atom, a halogen atom, a hydrocarbon group, an oxygen-containing group, a nitrogen-containing group, a boron-containing group, a sulfur-containing group, a phosphorus-containing group, a heterocyclic compound residual group, a silicon-containing group, a germanium-containing group or a tin-containing group, two or more of R¹ to R⁷ may be bonded to each other to form a ring except for the case where R¹ and R⁵ or R¹ and R⁶ are bonded to each other to form an aromatic ring, and when m is 2 or greater, one group of R¹ to R⁷ contained in one ligand and one group of R¹ to R⁷ contained in other ligands may be bonded, and R¹s, R²s, R³s, R⁴s, R⁵s, R⁶s and R⁷s may be the same or different,

n is a number satisfying a valence of M, and

X is a hydrogen atom, a halogen atom, a hydrocarbon group, an oxygen-containing group, a nitrogen-containing group, a boron-containing group, a sulfur-containing group, a phosphorus-containing group, a halogen-containing group, an aluminum-containing group, a heterocyclic compound residual group, a silicon-containing group, a germanium-containing group or a tin-containing group, and when n is 2 or greater, plural groups

indicated by X may be the same or different, and plural groups indicated by X may be bonded to each other to form a ring, and

wherein the catalyst activity is at least 1000 kg polyolefin/mole transition metal atom·hr.

2. (Original) The process for polymerizing an olefin as claimed in claim 1, wherein the transition metal compound (A) is a compound in which R^4 in the above formula (I) is a halogen atom, a hydrocarbon group, an oxygen-containing group, a nitrogen-containing group, a boron-containing group, a sulfur-containing group, a phosphorus-containing group, a heterocyclic compound residual group, a silicon-containing group, a germanium-containing group or a tin-containing group.

3-4. (Cancelled)

5. (Previously Presented) The process as claimed in claim 1, wherein the transition metal atom (M) in the formula (I) is selected from the group consisting of titanium, zirconium and hafnium.